REMARKS

In the May 10, 2006 Office Action, the Examiner objected to claim 8 for a minor informality and maintained the earlier rejection of claims 1-14 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,466,200 to Ulrich et al. (hereinafter "Ulrich"). Applicants have amended claim 8 to comply with a requirement of form expressly set forth in the previous Office Action. In addition, Applicants have amended claims 1 and 8 to present the claims in better form for consideration on appeal by clarifying that the central server includes a modeling component that simulates the interaction of the remote agents at the central server. Applicants have also amended claim 2 to present the claims in better form for consideration on appeal by clarifying that the central server includes a display for displaying the interactive simulation information. As a result, claims 1-14 are currently pending. Applicants respectfully traverse the objections and rejections for the reasons set forth hereinbelow.

A. Claim 8 Has Been Amended To Correct the Informality

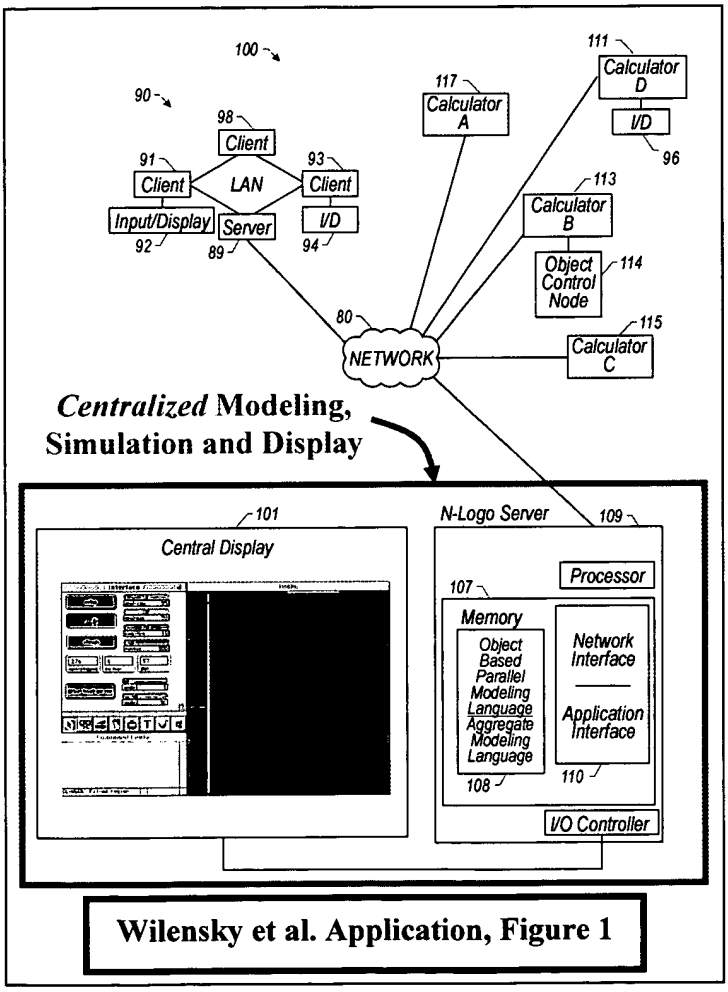
Applicants have amended claim 8 to correct the informality so that "the coordination" has been changed to "a coordination." Because this amendment is submitted to comply with a requirement of form set forth in the previous Office Action, Applicants submit that the amendment is permitted under 35 CFR § 1.116(b)(1).

B. Claims 1-14 Are Not Anticipated Because Ulrich Fails to Disclose a Server Computer That Centrally Simulates or Displays the Interaction of Remote Agents

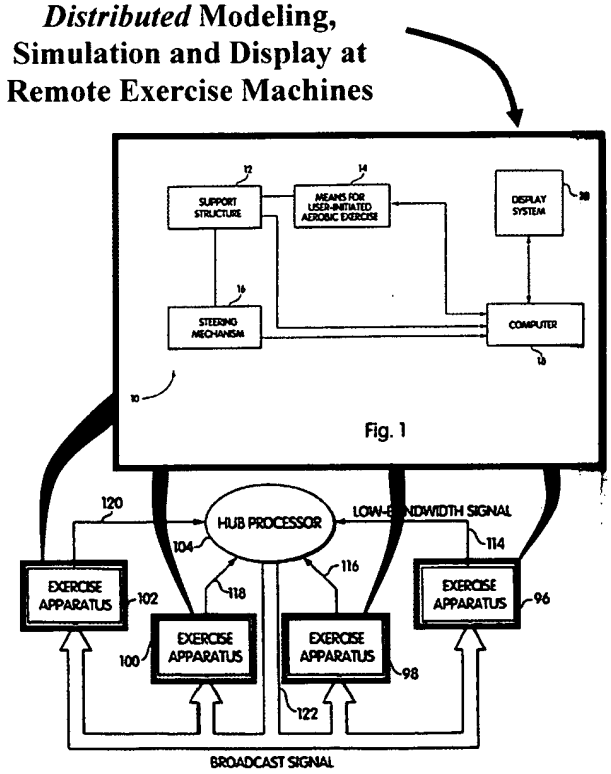
Applicants have amended claims 1 and 8 to clarify that the central server computer's modeling language component simulates the interaction of the remote agents at the server computing device based upon the collected object control node information and control instructions. In addition, Applicants have amended claim 9 to conform with the amendment to claim 8. Finally, Applicants have amended claim 2 to clarify that the central server computer's display tool includes a centrally located display for displaying the interactive simulation information. With these amendments, Applicants seek to clarify the centralized *simulation* and *display* aspects of the claims which are wholly missing from Ulrich's description of the hub processor 104, thereby presenting the claims in better form for consideration on appeal. Accordingly, Applicants submit that the amendments are permitted under 35 CFR § 1.116(b)(2).

1. Overview of Differences Between Claimed Invention and Ulrich

Applicants respectfully submit that the rejection of claims 1-14 is based on a misapplication of the claims to the Ulrich Patent. Generally speaking, the misapplication occurs when the **centralized** aspects of the claims (which variously recite a centralized server-based system for modeling, simulating, authoring, and/or displaying a complex and interactive dynamic system) are applied to the distributed aspects of Ulrich (which discloses a network of computerized remote exercise machines, each of which generates an interactive simulated environment using distributed database techniques). This difference is graphically illustrated below (and attached at Exhibit A) with selected annotated figures from the present application (Figure 1) and the Ulrich Patent (Figures 1 and 9):



Wilensky et al. Application, Figure 1



Ulrich Patent, Figures 1 and 9

As these figures show, **Applicants have centrally located the modeling, simulation and display aspects in the central server (e.g., the N-Logo Server), while Ulrich has distributed these aspects in each of the remote exercise machines, not in the hub processor.**

In particular, Ulrich discloses a network of computerized **remote exercise machines, each of which includes a "processor which generates an interactive simulated environment" using a shared "environmental database [that] is stored and executed on each machine."** Ulrich Patent, col. 2, lines 26-28; col. 8, lines 28-29; and col. 8, liens 34-37. Ulrich repeatedly discloses that the simulation is executed at the ***remote*** exercise machines. For example, when describing the exercise apparatus depicted in Figure 1, Ulrich teaches that the "interactive simulated environment is generated by a processor 18, such as a computer, and displayed on a display system 20." *See*, Ulrich Patent, col. 4, lines 9-11.

In this respect, Ulrich's distributed simulation approach was expressly distinguished by the Applicants in the application with the statement that:

> By centrally locating the modeling, analysis and display tools at the server 109, the aggregated results of the individual objects' behavior (controlled by the remote device inputs) can be efficiently simulated, thereby avoiding the complexity and time delays associated with distributing such functionality amongst the remote devices.

Application, p. 8 (paragraph 23) (emphasis added). Having specifically structured the claimed invention to recite that the server computing device includes a modeling language component that collects remote inputs and *simulates* the interaction of the remote agents in a centralized simulation, Applicants respectfully submit that Ulrich fails to disclose such a centralized simulation. *See, e.g.*, claim 1.

The Examiner appears to acknowledge this argument, but responds with the assertion that Ulrich discloses (at col. 11, lines 31-64) that the hub processor 104 "coordinates" the interaction of remote agents (exercise machines) by disseminating control information and instructions received from one remote agent to the other agents, thereby meeting the centralized modeling requirement. *See*, Office Action, pp. 2-3 (paragraph 8). The Examiner then asserts that Applicants have not claimed a central server that performs modeling of the remote agents. *See*, Office Action, p. 3 ("Additionally, it seems the Applicants are arguing that the central server of their claimed invention performs a modeling of the remote agents. This however is not claimed.").

Applicants must strenuously disagree. It should first be noted that the preamble language of claim 1 explicitly recites a "modeling device for a simulation of complex dynamic systems." *See above*, claim 1, line 1 (emphasis added). More importantly, claim 1 *explicitly* recites that the "server computing device" includes "an object-based modeling language component." *See*,

claim 1, line 12 (emphasis added). Apparently, the Examiner used the previously-recited "coordinates" language in claim 1 to define and replace the recited "modeling language component" requirement, effectively ignoring the "modeling language component" requirement of claim 1. To clarify the reading of the claims, Applicants have amended the recited "modeling language component" element to further recite how the server "collects" information from remote agents and "simulates" the interaction of remote agents.[1] In making these clarifications, Applicants submit that the additional recitations do not in any way negate the affirmative recitation of a "modeling" component at the central server, but instead add to the meaning of the claimed invention.

2. Ulrich's Hub Server Does Not Include A "Modeling Language Component," Much Less An "Object-Based Parallel Modeling Language Component"

In Applicants' previous submission, Applicants explained that Ulrich fails to disclose the "object-based parallel modeling language component" requirement of claims 1-7. In response, the Examiner asserted that Ulrich's references to an "object database" (col. 11, lines 46-49) and some persona selection software (col. 10, lines 2-7) are sufficient to disclose an object-based modeling language component. The Examiner also asserts for the first time that object-based parallel computer modeling languages are well known in the art, and that in the absence of an explicit definition in the application, the term will be given its ordinary meaning in the art, though the Examiner never states what this meaning is. *See*, Office Action, pp. 3-4 (paragraphs 10 and 12). As explained below, these assertions are not consistent with the plain meaning of the claim language or the usage in the present application.

While Applicants agree that the ordinary and customary meaning of the claim term should apply, Applicants respectfully submit that the Examiner has not used the ordinary meaning of an "object-based" modeling language, which is properly understood to refer to a modeling language that acts on each "object" as a self-contained unit that has its own internal

[1] Applicants maintain that the originally filed claim language -- in specifying that the modeling language component "coordinates" the interaction of the remote agents based on the collected object control node information and control instructions -- properly specified that the central server's modeling language component generated simulation information at the central server. However, the Examiner apparently interprets the "coordinates" language to apply to Ulrich's database distribution and update techniques. To remove any question and to place the claims in better form for consideration on appeal, Applicants have changed "coordinates" to "simulates" to underscore the central simulation function performed by the modeling language component of the central server.

state and can be given its own local procedures and rules of interaction.[2] *See, e.g.*, Microsoft Computer Dictionary, p. 338 (3d ed. 1997) ("**object-oriented programming** ... A programming paradigm in which a program is viewed as a collection of discrete objects that are self-contained collections of data structures and routines that interact with other objects.") (attached as Exhibit B).[3]

More importantly, Applicants' interpretation complies with the requirement that, during patent examination, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." *See*, MPEP, § 2111 (citing *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000)) (emphasis added). In this respect, Applicants' specification states that "object-based parallel computer modeling languages (OBPML), such as StarLogo and StarLogoT (Resnick, 1994; Wilensky, 1995; 1997b), have previously been developed." Application, paragraph 9. As stated in the attached copy of the cited "Wilensky, 1995" article, the plain meaning of an object-based modeling language refers to a programming language that acts on an object that has its "own local state and can be given its own local procedures and rules of interaction." *See*, U. Wilensky, "Paradox, Programming and Learning Probability: A Case Study In A Connected Mathematics Framework," Journal of Mathematical Behavior, Vol. 14, No. 2, fn 9 and associated text (1995) ("Each of the turtles (or agents) has its own local state and can be given its own local procedures and rules of interaction.... These 'object-oriented' features of the language make StarLogo a more accessible environment for modeling. In contrast to other modeling environments, such as STELLA (Richmond & Peterson, 1990), which model with aggregate quantities and flows, StarLogo is 'object' based - thus facilitating concrete interactions with the basic units of the model.") (attached as Exhibit C). Applicants' interpretation is also consistent with the specification's statement that:

> complex systems can be modeled and analyzed using the object-based parallel modeling language (OBPML) aspect of the present invention. OBPMLs afford a probabilistic and statistical approach to modeling which, in a distributed network embodiment of the present invention, can provide an improved method and system for simulating complex and dynamic systems.

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[2] Examples of such object-based languages include, but are not limited to, Simula, Smalltalk, C++, Objective-C, Eiffel, Python, Java, C#, Visual Basic.NET and REALbasic.

[3] It should be noted that the Microsoft Dictionary definitions differentiate between an "object-oriented database" and "object-oriented programming."

Application, paragraph 12. These passages from the Applicants' specification confirm that an "object-based modeling language" refers to a modeling language that acts on self-contained objects, each of which has its own internal state. *See also*, U. Wilensky, "What Is Normal Anyway? Therapy For Epistemological Anxiety," Educational Studies in Mathematics, Vol. 33, No. 2, pp. 171-202, § 5.2 (1997) ("'Object-based' means that each agent is self-contained: it has its own internal state and communicates with other agents primarily by local channels - agents don't do much action at a distance. The computer language Logo had a single such object - the 'turtle'.... Object-based parallel modeling languages such as StarLogo afford greater identification with their objects, and thus, in contrast to more procedural languages, foster syntonic learning of emergent phenomena.") (attached as Exhibit D).

Based on the correct interpretation of the "object-based parallel modeling language component" claim term, Applicants respectfully submit that claims 1-7 are not anticipated by Ulrich's description of the hub processor 104. A careful reading of the cited Ulrich passages (col. 11, lines 31-64) and the associated Figure 13 confirms that Ulrich is describing the distributed database techniques used by the hub server 104 to distribute and update databases in response to requests from the remote exercise machines. Indeed, there is no reference in Ulrich to any "modeling language" at the hub server, whether "object-based," "parallel" or otherwise!

3. Ulrich's Hub Server Does Not Include a Central Graphical Display

In their previous submission, Applicants explained that Ulrich fails to disclose a server computing device that includes "modeling tools," "analysis tools" and "display tools." With respect to the display limitation, a number of the claims expressly recite that the central server includes a central control panel having a graphical display for viewing the simulation information. *See*, claims 2, 5-7 and 12-14. In rejecting these claims, the Examiner relied on Ulrich's description of the display at the remote exercise machine (Figure 2A, item 35). *See*, Office Action, p. 3 (paragraph 9). However, the only displays described in Ulrich area those associated with the remote exercise apparatus. *See*, Ulrich Patent, Figures 1 and 10 (display system 20 in the depicted exercise apparatus), Figure 2A (display 35 in the depicted exercise cycle), Figure 2B (monitors 44, 46 in the depicted exercise cycle), and Figures 3 and 11 (visual display step 62 in the depicted process flow for the exercise cycle computer 32). In contrast, there is no suggestion or disclosure by Ulrich that the hub processor 104 includes a display. To improve the reading of the claims, Applicants have amended the recited "display tool" element

of claim 2 to clarify that the central server includes a display for displaying the interactive simulation information.

Once the centralized simulation and display aspects are taken into account, it becomes clear that Ulrich's disclosure of a network of remote exercise machine simulators (each of which generates an interactive simulated environment) does not anticipate the present invention's use of a central server computing device to collect remote agent inputs, simulate the interaction of the remote agent inputs display the resulting simulation. These differences alone are sufficient to differentiate the Ulrich disclosure as explained above, though there are other differences that flow therefrom, including the server-based modeling and analysis requirements of claims 2 and 9, the server-transmitted interactive simulation information of claims 3 and 10, and the server-based display requirements of claims 2, 5-7 and 12-14, none of which are disclosed by Ulrich. Accordingly, Applicants respectfully request that the anticipation rejection of claims 1-14 be withdrawn and that the claims be allowed.

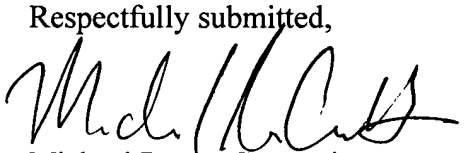
CONCLUSION

In view of the amendments and remarks set forth herein, Applicants respectfully submit that all pending claims are in condition for allowance. Accordingly, Applicants request that a Notice of Allowance be issued. Nonetheless, should any issues remain that might be subject to resolution through a telephone interview, the Examiner is requested to telephone the undersigned at 512-338-9100.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop AF, COMMISSIONER FOR PATENTS, PO Box 1450, Alexandria, VA 22313-1450, on July 10, 2006.

Attorney for Applicants

Respectfully submitted,



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